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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/493,480	01/28/2000	Martin A. Cheever	CRX113US	2303

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EXAMINER	
HOLLERAN, ANNE L	

ART UNIT	PAPER NUMBER
1643	

DATE MAILED: 04/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/493,480	CHEEVER ET AL.	
	Examiner	Art Unit	
	Anne L. Holleran	1643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *93,98-103,108-121 and 124-157* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *117-120* is/are allowed.

6)☒ Claim(s) *93,98-103,108-116,121 and 124-157* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed Jan. 23, 2006 is acknowledged.

Claims 97, 107, 122, and 123 were canceled. Claims 131-157 were added. Claims 93, 98-103, 108-121, 124-157 are pending and examined on the merits.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections Maintained:

3. The rejection of claims 93, 98-103, 108-116, 121-130, 155 -157 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is maintained because the amendment of 1/23/2006 introduces new matter. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The basis for this rejection is that the amendment to claims 93 and 103 introduces new matter into the specification as originally filed.

Claims 93 and 103 have been amended to include the limitation that the polypeptide, encoded by the claimed nucleic acid molecule, does not comprise "a Her-2/Neu transmembrane domain sequence". The passages pointed to applicants as support for the amendments to claim 1 does provide support for this limitation. On page 7, lines 15-17 of the specification, ECD-PD fusion proteins are described as proteins that do not include a substantial portion of the Her2/Neu

transmembrane domain, and preferably do not comprise any of the Her2/Neu transmembrane domain. This teaching does not provide support for the new limitation, that the polypeptides, encoded by the claimed nucleic acid molecules, do not comprise a Her2/Neu transmembrane domain sequence, because a Her2/Neu transmembrane domain sequence could be as small as a dinucleotide taken from the Her2/Neu transmembrane region. For example, within the transmembrane domain in human Her2/Neu, there is the dinucleotide V-V, which is a sequence found in the extracellular domain at amino acid positions 55-56. If applicant intended the amendment to mean that the polypeptide encoded by the claimed nucleic acid molecules does not include a Her2/Neu transmembrane domain in its entirety, then amendment of the claims to delete the word "sequence" would obviate this rejection.

4. Claims 93, 98-103, 108-116, 121, 124-157 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The basis for this rejection is that the specification fails to provide support for the polypeptides comprising amino acid sequences having at least 90% sequence identity to a reference sequence.

For claims 93, 103, 131 and 141, and any claims dependent on these claims, the claims include the limitation "capable of producing an immune response against the Her-2/Neu extracellular domain in a warm-blooded animal" and "which increases the immunogenicity of (a) [the extracellular domain of Her-2/Neu] in a warm blood animal". Applicants assert that these

claims describe the fusion proteins encoded by the claimed nucleic acid molecules by structure and function. This is not found persuasive, because the production of an immune response against a HER-2/Neu protein may define only a small region of an overall protein structure, and because almost any protein is capable of increasing the immunogenicity of a peptide. For a genus of products to be adequately described, the specification must provide at least the structural features common to the members of the genus. This may be done by describing a representative number of species of the genus, or by providing partial structures, physical or chemical characteristics, or functional characteristics coupled with a known or disclosed correlation between structure and function. In claims 93 and 131, for example, the specification only provides SEQ ID NO: 3 and SEQ ID NO: 4 as representatives of the ECD and PD portions, respectively of the polypeptides encoded by the claimed nucleic acid molecules. The specification has not provided any other variants of SEQ ID NO: 3 or SEQ ID NO: 4 that would be useful in the fusion proteins as structures that would produce an immune response against the Her-2/Neu extracellular domain or as structures that would increase the immunogenicity of the variant of SEQ ID NO: 3 in a warm-blooded animal. Because an immunogenic epitope may be a very small part of a total sequence, the structures encompassed by the phrase "having at least 90% sequence identity to SEQ ID NO: 3 and capable of producing an immune response against the Her-2Neu extracellular domain in a warm-blood animal" are highly variant. The specification fails to provide a teaching of the core structure that is the common feature of this genus. Likewise, because almost any protein would increase the immunogenicity of another protein, the structures encompassed by the phrase "having at least 90% sequence identity to SEQ ID NO: 4 and which increases the immunogenicity of (a) ["(a)" is an amino acid sequence

having 90% sequence identity to SEQ ID NO: 3] in a warm-blooded animal" are highly variant. The high degree of variance in structure is due to the fact that for sequence identity (see page 9 of the specification), percentage of sequence identity is determined by comparing two sequences over a comparison window, and the percentage is calculated by determining the number of positions at which the identical amino acid residue occurs in both sequences and dividing this number by the total number of positions in the window of comparison. Therefore, a very small sequence may have 100% sequence identity to any of the reference sequences because the window of comparison would define by the length of the small sequence. The specification fails to provide a teaching of the core structure that is the common feature of this genus. The rejection of claims 103 and 141 is made for the same reasons as those stated for claims 93 and 131, except in claim 103, the structures provided are SEQ ID NO: 3 and SEQ ID NO: 5.

The high degree of variance in structure has to do with the fact that for sequence identity (see page 10 of the specification), percentage of sequence identity is determined by comparing two sequences over a comparison window, and the percentage is calculated by determining the number of positions at which the identical amino acid residue occurs in both sequences and dividing this number by the total number of positions in the window of comparison. Therefore, a very small sequence may have 100% sequence identity to any of the reference sequences because the window of comparison would define by the length of the small sequence.

Taken together, the fact that the recitation that the variants of SEQ ID NO: 3 are either not defined by a function at all, or are defined by the function "capable of producing an immune response against a Her-2/Neu protein in a warm blood animal", which is function that is not correlated with a core structure to define the genus; and that the variants of either SEQ ID NO: 4

or SEQ ID NO: 5 are either not defined by a function at all, or are defined by the function "which increases the immunogenicity of" a peptide, which is a function that could be applied to almost any protein; and because there is no discussion in the specification correlating structure with function, the genus of claimed polypeptides is not supported by a disclosure of representative embodiments. Therefore, applicant is not in possession of the claimed polypeptides.

Conclusion

Claims 117-120 are allowed. Claims 93, 98-103, 108-116, 121, 124-157 are rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne Holleran, whose telephone number is (571) 272-0833. The

examiner can normally be reached on Monday through Friday from 9:30 am to 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Helms, can be reached on (571) 272-0832. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Official Fax number for Group 1600 is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Anne L. Holleran
Patent Examiner
April 6, 2006

LARRY R. HELMS, PH.D.
SUPERVISORY PATENT EXAMINER